

At last week's city council meeting, there were a couple questions about the numbers behind the Lake Leota dredging project. Since the referendum vote was overwhelmingly in favor with a vote of 1742 to 749 (and only 87 not voting either way), it seems to me that the answers are of general interest and should be public. And, obviously, I am adding a few questions and answers of my own to provide appropriate context and a more complete article.

What was originally planned for dredging the lake? It depends on the emphasis you place on the qualifier "originally." In late 2007, the city hired Vierbicher Associates to design the dredging project.

The design they presented in February 2008 called for dredging three areas of the lake: a forebay to act as a sediment trap to make future dredging easier and less expensive, a moderate depth area covering the main body of the lake, and a deeper area above the dam on the south end of the lake. Additionally, the northwest shore on the far side of the lake was designed to be a wide shelf only about a foot deep; this would reduce the amount of material to be removed (and paid for) while maintaining the original perimeter and surface area of the lake. The shallow area could also be planted in native aquatic vegetation to improve the lake's habitat qualities.

The design called for the removal of 200,000 cubic yards of sediment and had an estimated cost of just under \$1.7 million. With a few minor refinements, this is the design that was later used to bid the project in the fall of 2008.

What was the anticipated cost for dredging the lake? When Vierbicher presented their design in February 2008, the cost estimate was just under \$1.7 million. In early September 2008, the total cost (including permits, engineering, compensation to property owners, contingency, everything) was estimated at \$1,995,262.50. Rounded to \$2 million, this is the number the city presented for the referendum.

The referendum passed on November 4, and bids were opened a week later on November 11. And we got very favorable costs from the contractors. Integrity Grading & Excavating was the low bidder at \$885,069.63 for the dredging. There was also a second bid price of up to an additional \$806,000 in case material had to be trucked "off site" rather than placed in the adjacent farm fields.

From the start, financing the project was intended to be a two-step process. Note anticipation notes (NAN's) would be issued as short-term financing to pay the contractor and other bills during the project. Then, after the project was completed, long-term bonds would be issued to spread the payments over twenty years. Using the base bid of \$885,000, adding in the engineering and other costs, going very heavy on the contingency costs, and including bond counsel and issuance expenses – the NAN's were sized at \$1,365,000.

What's all this about contingencies? Contingencies are a hedge or cushion against the unknown. The city was planning to dig an enormous hole and did not know what would

be encountered during the work. In planning for such surprises, the city reduced the chance of the project being more than the amount named in the public referendum, going over budget, or costing more than had been financed.

We had identified a few problem areas that could result in additional work and higher costs. The weeds, trees, and other vegetation that had grown in the drained lake would need to be removed and separated from the dredging. And there are a number of natural springs which would need to be dewatered during the dredging. These two add-ons were expected to run as high as \$80,000, and they were just the contingencies that had been identified.

At one point the dredging was estimated around \$1.7 million and we used a contingency factor of ten percent or \$172,750. In November, even though the bid costs were substantially less than the estimate, I kept the \$172,750 (and actually rounded it up to \$175,000) when calculating the amount of the NAN's. And we kept the \$80,000 for the vegetation removal and dewatering the springs. So the NAN's included a very high contingency factor of \$255,000.

Was the lake excavated according to the plan? Was the engineering followed and was the proper amount of sediment removed from the lake? Absolutely. Integrity Grading & Excavating actually used global positioning system (GPS) units with their equipment in order to remove the material as had been designed by Vierbicher. Of course, the GPS was not perfectly accurate since the work involved great big backhoes and off-road trucks. There was naturally some deviation and variance throughout the entire lakebed. This was perfectly acceptable and in compliance with the contract.

Because the reality in the field is different than even the best plans on paper, the contract provides that the city's engineer has the authority to interpret the contract and could certainly approve such deviations from the plans. Vierbicher was on site nearly every day during the dredging, and we held weekly progress meetings.

One sizable variation from the design was a ridge of sand and gravel which was uncovered in front of the cannon. The city's public works superintendent authorized not removing this gravel point. The sand and gravel could not be placed on the farm land and would cost more to haul elsewhere, a sand bottom is appropriate to leave in place, and when the lake is brought to its full depth the ridge will not be visible. This decision was within the authority of the public works superintendent by the nature of his position with the city, and I fully support it as the right decision.

These variations were consistent with the project's design and were within the scope of the contract. But they added up. The post-construction survey revealed 180,200 cubic yards of sediment was removed, opposed to the 200,000 in the design.

If only 180,200 cubic yards were removed is the city paying for more dirt being removed than actually happened? The contract is on a unit-price basis. That means we pay per cubic yard actually removed. Pre and post-construction surveys were used to determine

the correct amount of material removed. The city is paying for 180,200 cubic yards; the city has not been defrauded or shortchanged.

What were the dates and amounts of payments to the contractor? To date, four payments have been made to Integrity: \$34,190.18 on December 23, \$303,497.45 on January 16, \$455,489.09 on February 12, and \$51,846.73 on March 10. These total \$845,023.45. The city is holding back about \$40,000 for completion of the project: leveling materials placed in the farm fields and restoring the conditions on neighboring properties that were crossed in hauling the material.

There was about 16,000 cubic yards of sand and gravel that was removed and hauled separately at a higher cost. Placing rip rap along the dam-side of the lake had not been included in the dredging project, so this was also an additional expense. Some site stabilization and erosion control is needed beyond what was called for in the plans and contract; these will also add some costs. In the end, Integrity will likely wind up being paid a bit more than the \$885,000 bid.

What was the total cost, contractor and everything else? As noted earlier, the sizing of the NAN's included \$255,000 in contingencies. In reality, about \$50,000 of the contingency has been needed – mostly for extra maintenance on the dam and plans to patch the damaged park roads. Since the project is not quite complete, and we can expect some additional costs for site stabilization and extra erosion control, the city is keeping an additional \$50,000 reserved in contingency.

The remaining \$155,000 is being used to reduce the amount of the bond issue, the long-term term financing. The result is a lesser impact on the tax rate and a shortened payment schedule than previously projected. The interest alone will be about \$116,000 less than had been projected over the life of the bonds. The bond issue is for \$1,205,000, has a true interest cost of 4.687%, and has the final payment due in April 2027.